

The radio frequency identification (RFID) reader device may be capable of initiating or providing various services or applications based on the data received from the radio frequency identification (RFID) transponder. However, the portable device equipped with a conventional radio frequency identification (RFID) transponder circuit does not have any means to determine whether the data of the radio frequency identification (RFID) transponder have been read by the external radio frequency identification (RFID) reader device for performing subsequent operations based on this determination.

[0010] Moreover, when considering various transaction applications (such as ticketing services) security and privacy issues relating especially to ticket redemption process needs to taken into account. For instance a user may have purchased a mass transit ticket valid for a certain time-period or a serial ticket with multiple one-way- or roundtrips. When such a ticket is implemented by way of a radio frequency identification (RFID) transponder providing the ticket information, the information typically includes some private user-related information (e.g. social-security number, date of birth, customer identification or like) and/or other confidential and secure information (e.g. ticket identifier or like). Such sensitive information is preferably kept secret in order to prevent possible misuse. In order to keep such sensitive information hidden (invisible) to any potentially hostile radio frequency identification (RFID) reader devices, it would be advantageous if the mobile terminal equipped with the radio frequency identification (RFID) transponder circuit, which is capable to determine whether the data stored in the radio frequency identification (RFID) transponder has been read-out in order to remove the sensitive data from the radio frequency identification (RFID) transponder to enhance security.

SUMMARY

[0011] Accordingly, the object of the present invention is to provide an implementation and a method, on the basis of which a detection of a read access to a radio frequency identification (RFID) transponder by a corresponding reader device is detectable and analyzable.

[0012] In particular, the present invention is directed to provide back-end logic for allowing the radio frequency identification (RFID) transponder circuit to provide information relating to a reading process of the transponder information stored in the radio frequency identification (RFID) transponder.

[0013] More particularly, the present invention is further directed to allow a portable device equipped with a radio frequency identification (RFID) transponder circuit and having a detector logic for performing subsequent operations based on a detection determination. The subsequent operations may comprise for instance the operation or initiation of a particular predefined service(s) and application(s) corresponding to the read radio frequency identification (RFID) transponder data, respectively.

[0014] Advantageously, the present invention provides means and methods for enhancing interaction and services by means of providing internal input within a terminal device to initiate processes relating to certain services and applications. Moreover, the present invention provides beneficially means and methods for enhancing security and privacy issues in relation to transaction service especially in connection with ticketing applications.

[0015] According to a first aspect of the present invention, a radio frequency identification device and means operable with a detector logic is provided, respectively. The radio frequency interface is configured to receive a radio frequency interrogating signal from a counterpart radio frequency identification device such as a reader, which for instance retrieves from the radio frequency identification device in question. The controller circuit supplies data to the radio frequency interface in consequence of the receiving of the interrogating signal in order to transmit a radio frequency response signal carrying the data to the counterpart radio frequency identification device. The radio frequency identification device comprises further a detector logic. The detector logic is configured to generate a detection signal responsive to one or more detection events, which are defined in view of the operation and operational mode of the radio frequency identification device, respectively. The generated detection signal is provided to be supplied via a detection signal output to an electronic device having a corresponding detection signal input.

[0016] According to an embodiment of the present invention, the detection event may be constituted by detecting the receiving of an interrogating signal by the radio frequency interface; energizing the radio frequency identification device in response to receiving an interrogating signal; supplying data to the radio frequency interface in response to the receiving an interrogating signal; transmitting radio frequency response signal(s) via the antenna; or attenuating the radio frequency identification device subsequent to transmitting radio frequency response signal(s). The detection events applicable with the detector logic may not be limited to the aforementioned list. Further detection events are possible.

[0017] According to another embodiment of the present invention, the radio frequency identification device is operable with radio frequency identification reader functionality and radio frequency identification transponder functionality. Alternatively, the radio frequency identification device may be a radio frequency identification transponder.

[0018] According to another embodiment of the present invention, the radio frequency identification device is operable with radio frequency identification transponder functionality to emulate a radio frequency identification transponder. This means for instance that the radio frequency identification device may emulate a radio frequency identification transponder, in particular a passive radio frequency identification transponder, in case the radio frequency identification device is unpowered. Otherwise, i.e. in case the radio frequency identification device is powered by for example an external power source, the radio frequency identification device is operable with radio frequency identification reader functionality.

[0019] According to yet another embodiment of the present invention, the detector logic is at least connectable with the radio frequency identification device and in particular, with the radio frequency interface, the antenna or the controller logic. In particular, the detector logic may be provided internally to the radio frequency identification device or the detector logic may provided externally to the radio frequency identification device. More particularly, the detector logic is provided integrally with one of the components forming the radio frequency identification device; i.e. for instance the radio frequency interface, the antenna, and the controller logic, respectively. Further, the detector logic may